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TAKE-UP-ONLY  
CONTROL SYSTEM ONLY

~~TOP SECRET~~

## Declass Review by NIMA/DOD

TCS-9287-65  
23 July 1965

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MEMORANDUM FOR: Chairman, Deployment Working Group, GMAIC

SUBJECT: Detailed analysis of Type IIIIC ICBM Complexes

REFERENCE: GMAIC Requirement 7-6  
(NPIC Project 11030-6)

1. This memorandum is in response to your requirement which requests detailed analysis of Type IIIIC ICBM launch complexes including launch areas, complex support facilities and control/guidance facilities. This report is presented in narrative form with attached scale drawings.

### 2. Type III C - ICBM Construction Procedures

Construction procedures at the III-C sites vary slightly at each individual installation, probably due to geological or environmental conditions, but generally follow a basic pattern. Usually a security fence is erected around the proposed site, site support buildings are erected and earth moving equipment begin surface grading. Next, a silo excavation is apparent with one or two earthen ramps giving access into the excavation. At this time the spoil from the excavation is usually mounded in a large rectangular pattern to the west side of the silo excavation. Additional spoil is piled in a square in line with the silo excavation and the large rectangular mound, but on the opposite side of the silo excavation. This square generally is approximately the size of the silo excavation in its later stages of construction. This mound and square do not appear at all III-C sites. They probably are associated with the building up of the natural gradient of the surrounding terrain. The silo excavation is usually dug with sheer walls although at least two of the sites have terraced sides probably due to soil considerations. Once the desired depth of the silo excavation is reached, the silo coring begins. It is difficult to place this transition from excavation to coring into an accurate time frame due to lack of evidence. Imeni Gastello H took only 3 months from negation to excavation with a silo core while Zhangiz Tobe F took 6 months and Dombarovskiy E took 8 months to reach this comparable stage of full excavation and silo coring. For the purpose of this requirement, an elapsed time of 6 months will be used to denote the completion of this phase of construction. It then appears a concrete slab (silo base) is poured in the squared-off bottom of the excavation and the vertical walls of the silo structure are begun. A loop road is usually apparent at this point which is approximately nine to 11 months from start, but not in every case.

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The silo structure begins to take shape in its square form and compartmentalization within the structure is evident. One, sometimes two, construction ramps from ground level to the top of the silo structure are in place at this point which is about 12-14 months from start.

The silo structure walls are then brought to their predetermined height, and the aforementioned compartmentalization is not so evident, as if the "capping" of the silo structure is taking place. The construction ramps are still in place at this time which is approximately 17-18 months from start. It appears from available photography that, in some cases, these silo walls will extend above the natural grade of the surrounding terrain. In other cases the silo will be even with natural grade.

At three of the III-C complexes, Zhangiz-Tobe, Imeni Castello and Uzhur, linear objects, possibly cylindrical or convex in shape, appear on the rectangular earth mounds or in the same relative area at those sites without the earthen mounds, but always in line with the center of the silo. The exact nature of these objects are unknown at this time but considering length and appearance they are probably silo liners being fabricated on site. If indeed they are silo liners, the diameter cannot be determined from the available photo coverage. Construction timing does not seem to dictate the appearance of these objects since they are located at different sites in all phases of the mid-stage of construction.

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To date, [REDACTED] no site has progressed past the description stated above.

### 3. Type III-C Control Facilities

An examination of III-C and III-D interferometer guidance/control systems has shown that the two types are nearly identical with the exception of the arrangement of the control and equipment buildings located near the vertex angle. The study of Type III D control facilities is discussed separately.

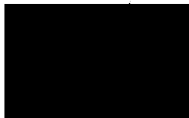
The III-C control facility has one large compartmented building (primary control building) and one smaller probable equipment building located at the vertex angle of the interferometer leg. These buildings will probably be earth covered when construction is completed.

The control site will probably have hardened antenna positions upon completion. This is based on a configuration comparison with the Kozelsk F launch area hardened antenna position.

A noteworthy item is the existence of cubical shaped pre-fabricated structures, which may be antenna mountings or waveguide/cable conduit mountings, scattered around the control buildings at Kartaly A and Imeni Castello D. There is only one identified interferometer at each III-C launch complex at this time. There is no indication at this time that additional control/guidance facilities are under construction. All known sites were searched for construction activity of this nature and security fence lines observed for possible expansion. The search had negative results.

No statement can be made at this time with respect to number of launch sites served by a common control/guidance facility. Future construction progress must be photographed to determine the control deployment concept.


The following table provides interferometer leg orientations:

<u>Site</u>	<u>Designation</u>	<u>Orientation</u>
Aleysk	C	
Dombarovskiy	B	
Imeni Castello	D	
Kartaly	A	
Uzhur	B	
Zhangiz Tobe	A	340°/070°

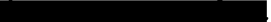
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#### 4. Type IIIC Complex Support Facilities

The complex support facilities at the ~~IIIC~~ launch complexes were compared with those at the 18 original complexes. While they are functionally similar, the complex support facilities at the 18 original complexes were considerably larger.

Imeni Castello, Zhangiz-Tobe, and Uzhur complexes have similar CSFs and each are located on the edge of town, situated at the end of a new rail spur. This rail spur is divided into three branch spurs as it enters the support facility. Each support facility contains 19, 30 and 24 buildings respectively. These buildings appear to be about 60% storage, the remainder are shops, housing and sheds. Each installation has a long building (probable transshipment shed) located along one of the rail spurs. The roofs of these buildings are arched and appear to be supported by columns. Uzhur and Zhangiz-Tobe also have a large U-shaped building and Imeni Castello has a large E-shaped building within the fenced area. Each of the support facilities has a motor pool, open storage including building material, lumber, crates and related material. These installations were first observed in the early stage of construction in  and the latest coverage shows them practically completed.

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Kartaly, Dombarovskiy, and Aleysk CSFs are similar to the other 3 complexes but are divided into three separate areas, each served by rail spurs. Construction was started on these installations in  and now appear to be nearly completed. Each of the above facilities contain 49, 34 and 51 buildings, respectively, with about 60% storage buildings and the remaining buildings are housing, shops and sheds. The main central area in each support facility consists of approximately 12 shop and storage buildings, open storage, building material, lumber, crates, a motor pool, a long building (similar to the long arch-roof building above), a large U-shaped building and 2 or 3 buildings under construction. The rail serving this portion of the facility divides into 3 or 4 dead-end spurs.

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The second fenced area, a military or construction camp is rail-served and consists of 14 barracks-type buildings, one messhall-type, 6 storage, 2 or 3 shop buildings and 6 buildings under construction.

The third area is rail-served and appears to be a permanent barracks and housing camp. It consists of 3 or 4 multi-story barracks, with 2 or 3 more under construction, 8 or 9 storage buildings, 2 or 3 shop-type buildings under construction and a large motor pool.

While the enumerated differences exist at these support facilities, no evidence of differences other than construction phase, can be detected at the associated III C launch areas.

#### 5. Type III C Site Support Facilities

The site support facilities at the III C launch complexes were compared with those at the 18 original complexes. While they are functionally similar, the site support facilities at the 18 original complexes were considerably larger. The facilities at five of the complexes contain 2 to 4 large rectangular buildings which are usually equal in size and normally parallel to each other. They appear to be barracks-type buildings. Several smaller buildings can be observed co-located with these buildings. At the Ireni Gastello launch areas there are 60 to 80 smaller buildings of equal size instead of the large rectangular buildings. These site support buildings are always located outside the launch site security fence and within 1.0 nm from launch site construction area.

There is some indication at the Kartaly ICEM complex that road improvement between sites is underway. Grading and surfacing is being conducted between Launch Areas B and D. Some road improvement at the Kartaly Complex, although limited to those areas mentioned above, more nearly approaches that of the "complex main roads" as seen at the original 18 complexes. Road construction effort of this order has not been identified at the other known III C ICEM complexes.

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7. This project is considered to be complete.

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Colonel, USA

Assistant for Photographic Analysis, NPIC

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Enclosures:

- 6 scale drawings
- 2 vu-graphs (with copies 1-8 only) (under separate cover)

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